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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/518,070

07/25/2005

Sergio Noe'

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EXAMINER

CHUNG, SUSANNAH LEE

ART UNIT

PAPER NUMBER

1626

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/518,070	Applicant(s) NOE', SERGIO	
	Examiner SUSANNAH CHUNG	Art Unit 1626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/14/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 1-8 are pending in the instant application.

Priority

This application is a 371 of PCT/EP03/05786, filed 05/30/2003.

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d) by application no. 2002A001423 filed in the Italian Patent Office on 6/27/02, which papers have been placed of record in the file. The application names an inventor or inventors named in the prior application.

Information Disclosure Statement

The information disclosure statement (IDS), filed on 12/14/2004 has been considered. Please refer to Applicant's copy of the 1449 submitted herewith.

Drawings

The drawings were received on 12/14/2004. These drawings are accepted.

Response to Election of Species

Applicant's election with traverse of the aromatic hydrocarbon of p-xylene and the corresponding acid of terephthalic acid for search and examination purposes is acknowledged. An election of species for search and examination purposes is proper under the Administrative Instructions under the PCT, if unity of invention is not present. Unity of invention is not present if there is no technical relation between the claimed subject matter **AND** the technical relation does not make a contribution over the prior art. In the instant case, an oxidation process of an aromatic hydrocarbon to produce the corresponding acid does not make a contribution over the

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prior art (see rejections below) and request for an election of species is proper. A restriction was not made in this case and all the claims have been examined for patentability.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-8 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The chemical structure or name of the aromatic hydrocarbon, which is critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). The chemical structure or name of the aromatic hydrocarbon compound is critical and essential to the practice of the invention, without it Examiner is unable to examine the claims. In essence no product was provided. Simply stating that the aromatic hydrocarbon could be o-, m-, or p-xylene, pseudocumene, mesitylene, and their homologous products reads on virtually any patent that contains an aromatic hydrocarbon group. Therefore, the claims are not enabling.

In the instant application, it appears that the oxidation process was conducted using p-xylene to produce the corresponding terephthalic acid only (see specification page 3, approximately line 4).

Claim Rejections - 35 USC § 112, 2nd paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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Claims 4-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims must stand alone to define the invention and incorporation into claims by express reference to the specification is not permitted. *Ex parte Fressola*, 27 USPQ 2d 1608. Claims that require one to read into the specification or drawings to determine the metes and bounds of the invention are repugnant to modern practice in the Office and are properly rejected under 35 USC 112, 2nd paragraph, as failing to particularly point out and distinctly claim the invention. *Id.* At 1609. In the instant case, the claims are rejected because reference is made column (D), line (9), line (3), condensor (C), vessel (V), etc..., wherein the various columns, lines, compressors, vessels, etc. cannot be determined in the claim. Further clarification is required wherein one does not have to read into the specification or drawings to know the metes and bounds of what Applicant is claiming.

Claim Rejections - 35 USC § 112, 2nd paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term “modifier of the relative volatility of said components” appearing in claim 1, lines 13-14, is unclear. Further clarification is required.

Claim Rejections - 35 USC § 112, 2nd paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term “such as” is indefinite because the metes and bounds of the claim are not clearly set forth. Description of examples or preferences is properly set forth in the specification rather than the claims. If stated in the claims, examples and preferences, i.e. such as, may lead to confusion over the intended scope of a claim. See MPEP 2173.05(d), Exemplary Claim Language (“such as”). Further clarification is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parten et al., U.S. Pat. Num. 5,980,696.

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Claims 1-8 of Applicant's instant elected invention teaches an oxidation process for preparing aromatic hydrocarbons to produce the corresponding acids and anhydrides by catalytic oxidation with acetic acid as reaction medium. The improvement of the instant process over the prior art is that the water by-product of the oxidation reaction is separated from the acetic acid and the acetic acid that is obtained in the bottom distillation stream to be recycled to the reaction together with the extraction solvent. (See specification page 3).

Determination of the scope and content of the prior art (MPEP § 2141.01)

Parten teaches an oxidation process for preparing an aromatic dicarboxylic acid, i.e. terephthalic acid, from p-xylene by catalytic oxidation with acetic acid as reaction medium. (See columns 11-12, claim 1). Claim 1 teaches that the water and organic phases are separated and recovered by the system (See columns 11-12). Claim 6 teaches that the phase obtained in the lower section of the column is recycled to the column.

Ascertainment of the difference between the prior art and the claims (MPEP § 2141.02)

The difference between the prior art of Parten and the instant claims is that the prior art is more specific than the instant claims. The instant claims generically discuss an oxidation process of a broad class of compounds and reagents, wherein the claimed improvement is that the water by-product is separated and the bottom layer recycled, but the instant claims do not specifically claim or point out how this is done and the prior art of Parten reads on the claims. As discussed above, Parten discloses keeping the water layer separate for the process and the recycling of the lower or bottom layer. It is unclear how the instant process is different from the prior art process of Parten.

Finding of prima facie obviousness - rationale and motivation (MPEP § 2142-2413)

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One skilled in the art would have found the claimed process *prima facie* obvious because the instantly claimed process and the process in Parten are describing the same oxidation process, wherein the same reagents are used to obtain the same final product. Although, it appears that the reaction steps of the instant application differs from that of the prior art, in essence the same process is being conducted, i.e. an oxidation process to obtain terephthalic acid from p-xylene by catalytic oxidation with acetic acid as a reaction medium, wherein the water is separated and the bottom layer recycled.

Absent a showing of unexpected results, one of ordinary skill in the art would have found the instantly claimed process obvious over the prior art process. It is well known in the art that a change in temperature, concentration, or both is not a patentable modification in the absence of unexpected results which is different in kind and not degree. In *re Aller*, 105 USPQ 233. In addition, discovery of an optimum value of a result effective variable is not patentable if such discovery is within skill in the art. A *prima facie* case of obviousness may be rebutted in optimizing a variable only when results are unexpectedly good. In *re Boesch*, 205 USPQ 215. Therefore, the claimed process is *prima facie* obvious in light of the prior art unless applicant can distinctly and particularly point out how the instant process differs from that of Parten.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohkoshi et al., U.S. Pat. Num. 5,705,682.

Claims 1-8 of Applicant's instant elected invention teaches an oxidation process for preparing aromatic hydrocarbons to produce the corresponding acids and anhydrides by catalytic oxidation with acetic acid as reaction medium. The improvement of the instant process over the prior art is that the water by-product of the oxidation reaction is separated from the acetic acid and the acetic acid that is obtained in the bottom distillation stream to be recycled to the reaction together with the extraction solvent. (See specification page 3).

Determination of the scope and content of the prior art (MPEP § 2141.01)

Ohkoshi teaches an oxidation process for preparing highly pure terephthalic acid from p-xylene by catalytic oxidation with acetic acid as reaction medium. (See columns 9-10, claim 1). Claim 1 teaches that the water and organic phases are separated and recovered by the system. Claims 6 and 7 teach that the separated water and organic phases are recycled. (See column 10).

Ascertainment of the difference between the prior art and the claims (MPEP § 2141.02)

The difference between the prior art of Ohkoshi and the instant claims is that the prior art is more specific than the instant claims, wherein the exact reagents and catalysts used are

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specifically pointed out. The instant claims generically discuss an oxidation process of a broad class of compounds and reagents, wherein the claimed improvement is that the water by-product is separated and the bottom layer recycled, but the instant claims do not specifically claim or point out how this is done and the prior art of Ohkoshi reads on the claims. As discussed above, Ohkoshi discloses the separation of the water and organic layers and the recycling of the different layers. It is unclear how the instant process is different from the prior art process of Ohkoshi.

Finding of prima facie obviousness - rationale and motivation (MPEP § 2142-2413)

One skilled in the art would have found the claimed process prima facie obvious because the instantly claimed process and the process in Ohkoshi are describing the same oxidation process, wherein the same reagents are used to obtain the same final product. Although, it appears that the reaction steps of the instant application differs from that of the prior art, in essence the same process is being conducted, i.e. an oxidation process to obtain terephthalic acid from p-xylene by catalytic oxidation with acetic acid as a reaction medium, wherein the water is separated and the bottom layer recycled.

Absent a showing of unexpected results, one of ordinary skill in the art would have found the instantly claimed process obvious over the prior art process. It is well known in the art that a change in temperature, concentration, or both is not a patentable modification in the absence of unexpected results which is different in kind and not degree. In re Aller, 105 USPQ 233. In addition, discovery of an optimum value of a result effective variable is not patentable if such discovery is within skill in the art. A prima facie case of obviousness may be rebutted in optimizing a variable only when results are unexpectedly good. In re Boesch, 205 USPQ 215.

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Therefore, the claimed process is prima facie obvious in light of the prior art unless applicant can distinctly and particularly point out how the instant process differs from that of Ohkoshi.

Telephone Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susannah Chung whose telephone number is (571) 272-6098.

The examiner can normally be reached on M-F, 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph McKane can be reached on (571) 272-0699. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/REI-TSANG SHIAO /
Primary Examiner, Art Unit 1626

Susannah Chung, 5/15/2008